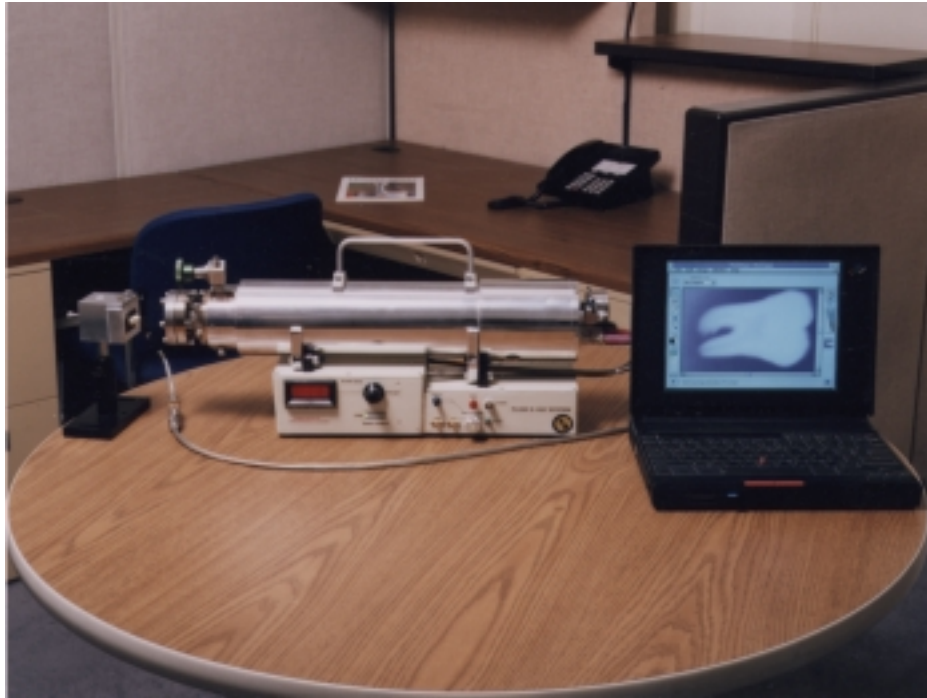


PORTABLE SOURCE OF INTENSE HARD X-RAY PULSES HAVING REPEATABLE PULSE WIDTH AND DOSE



The Naval Research Laboratory has developed an intense pulsed x-ray source for remote imaging of small parts, examination of biological specimens and calibration and testing of x-ray detectors, x-ray optics and x-ray CCD imaging arrays. Applications of this technology include:

- In situ testing of x-ray detectors and CCD imaging arrays
- Dental x-ray imaging in remote locations
- In situ examination of injured human extremities
- Complete elimination of motion blurring will allow imaging of small animals without anesthesia
- On site examination of small archeological artifacts when used with CCD imaging panel and lap top computer

Field emission x-ray production offers significant advantages over traditional thermionic x-ray tubes.

- Intense x-ray flux: dose at tube window $>3 \text{ rad/cm}^2$ and repeatability is more than 95%
- Short pulse duration: 50 nanosecond x-ray pulse width eliminates integrated noise in CCD arrays and motion blurring in rapid motion radiography
- Complete portability: internal battery can supply >150 pulses. Can be recharged by 12 volt vehicle voltage supply or 115 vac mains

Points of Contact

Naval Research Laboratory
4555 Overlook Avenue, SW • Washington, DC 20375-5320

Jane F. Kuhl • Head, Technology Transfer Office • (202) 767-3083 • kuhl@utopia.nrl.navy.mil

John F. Seely • Space Sciences Division • (202) 767-3529